1617

KEYSTONE WATER METER

PITTSBURG
METER COMPANY
EAST PITTSBURG, PA.

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Alan O'Bright

THE STANDARD OF
METER EFFICIENCY

KEYSTONE
WATER METER

8/92 T-Ha (RB)

Keystone Water Meter

PITTSBURG METER COMPANY.
EAST PITTSBURG, PA.

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PITTSBURG METER COMPANY,
East Pittsburg, Pa.

"The World generally gives its admiration, not to the one who does what no one else attempts, but to the one who does BEST what others do well."

THE popular verdict of all those who have tried and examined into the merits of the Keystone Water Meter is that the makers have done *best* what others have done well. The Keystone is not the oldest meter on the market, and in this it has an advantage, because in its design and construction the defects brought out in some of the older meters, by actual use, have been overcome, and their good points have been improved upon by the little essentials, which, in the general round up mean for the Keystone "the standard of meter efficiency."

This catalogue is designed to illustrate some of these points. Lengthy technical argument or claim of large sales is not always a guarantee of superiority or evidence of merit; for many theories have been found very weak when put to the actual test, and large sales are often traced to the fact that they were made before something better was to be had.

The Keystone is one of the newest meters on the market, but in the comparatively short time it has been before the public it has established its worth, and practical meter men have been quick to note its points of superiority. Without wasting words on technical argument, therefore, we make the statement that we have the best water meter on the market, and will at once take the matter to the court of last resort—that of actual test, from which satisfactory verdict there can be no appeal.

Attention is invited to the bird's-eye view of our works, which is the largest and best equipped factory devoted to the exclusive manufacture of meters in the world; also to the chapters "What's in a Name and Location," and "The Utility of Water Meters." Special attention, however, is called to the pages whereon we illustrate the Keystone Meter, and demonstrate why it is the best.

PITTSBURG METER COMPANY

What's in a Name

"WESTINGHOUSE" is a household word, and stands for quality and progress the world over in air brakes, electrical machinery, and the many other useful mechanical devices made by the several associated interests doing business under that well known name. There is a reason for it. "Westinghouse" is another name for the best in every line of their manufacture — a broad statement, but the verdict of the people which cannot be disproved. The Pittsburg Meter Company is one of the associated interests of the great Westinghouse system, and the same care and thoroughness that characterize the selection of materials, as well as accuracy of design and construction that enter into air brakes and other mechanical appliances made by this great company, are also found in the Keystone Water Meter. In the first place the superior merits of the Keystone Meter had to be thoroughly demonstrated before it could lay claim to the patronage and become one of the associated interests of the Westinghouse system, and to many buyers this alone is sufficient recommendation. But while the name Westinghouse is a guarantee of superiority in anything with which it is associated, we want to emphasize the fact that the Keystone Meter is good enough and strong enough to sell on its own merits, and upon its merits alone we sell it.

As to Location

Location is second only in importance to name, when that name stands for sterling quality. The main office and works of the Pittsburg Meter Company is located at East Pittsburg, the home of the Westinghouse industries, on the main line of the Pennsylvania Railroad; ample facilities for receiving and shipping goods are therefore assured. The company also owns its own

water and natural gas supply, having both artesian and natural gas wells on its property. This very materially reduces the cost of operation and enables the manufacturers to employ the most skilled workmen, and to put the very best of materials into their product, which would otherwise have to go into the cost of maintenance of equipment and expense of operation, enabling the makers to build a really high class meter at a moderate cost.

Summing up, therefore, the associated name of Westinghouse carries with it a guarantee of quality, while the advantages of location, abundance of water and gas free for the drilling, reduces the cost of manufacture and maintenance and enables the builders to put into their product the very best of materials, which, in the hands of skilled workmen, is becoming known the world over as the "Keystone, the Standard of Meter Efficiency."

Utility of the Water Meter

THE Water Meter has long since established its right to favorable recognition, both from the water department and the consumer. This is proven from the fact that the cities and towns that have used the system the longest are among its most stanch advocates.

One water works superintendent, after ten years of experience with water meters, says: "We have every tap metered now, and the result compared with the flat rate is that our coal bill is reduced 35 per cent. and the revenue is about the same as before. Our customers are better satisfied, for they know that they are only paying for the water they use." The foregoing is an expression of satisfaction both from the producer and the consumer.

Looking the proposition squarely in the face, all must admit that the meter system is the only just and equitable method of buying or selling water. It is just as reasonable and logical to maintain that the grocer, butcher and milk dealer should throw away their scales and measures and furnish their products at so much per year, basing their charges according to the size of the house or the frontage of the lot, regardless of the number of persons in the family, as to claim that there is anything just or equitable in selling water by the flat rate system.

Under the flat rate system there is not only discrimination in favor of the large consumer as against the smaller, but the economical man is called upon to pay for the extravagant waste of his fellows. He not only pays for the water that is wasted, but his share towards the increased equipment necessary to provide for this waste as well as for the expense of maintaining it; for wherever the meter system has been adopted the saving of water and the accompanying saving of running expenses and new equipment has been enormous.

The desirability of a plentiful supply of pure and wholesome water is becoming more and more a question of vital importance, and many cities are considering putting in filtration plants that will cost thousands of dollars, while others have already put them in. The general adoption of the meter system is the surest means of making this a permanent investment.

A water plant is the most vitally interesting public utility in a city or town, for it deeply concerns the health of the community, and is the first consideration in the establishment of sanitary arrangements. It affords fire protection to the community and is far and away the most essential interest to the city when judiciously managed. The great question of waste has been the great bugbear of water departments. This question has been solved by the water meter, and managers of water departments are making judicious investments in the purchase of reliable water meters, rather than to procure, at great expense, new pumping machinery to keep up with the increase or abnormal consumption due to continued waste. Water meters are therefore growing in favor because they are increasing the revenue of water departments, and it is only a question of time when they will be universally adopted.

A water meter is the water department's most careful and conscientious inspector. It never tires, is always on duty, and does its work noiselessly, accurately and at a minimum of cost. It is a dividend producer because it increases revenue by reducing fuel consumption, superfluous wear and tear of pumps and machinery, and its adoption often makes additional pumping machinery unnecessary. They increase the efficiency of the fire department inasmuch as they stop waste, and enable the pumps to maintain an equal fire pressure at all times. While it is true that some are dissatisfied with water meters, it will be found to be among those who have wasteful fixtures, and on whose premises there is defective plumbing.

There is a mistaken idea among some that the meter system restricts the legitimate use of water. This is not true. There is not a water works in existence that has adopted the meter system with the idea of restricting the use of water. Their only aim is to prevent the careless waste and avoid the leaks, and to insure for them that they will be paid for all the water delivered, be it wasted or actually used. The consumer, also, has the satisfaction of knowing that he pays only for what he receives, and is not compelled to bear the expense of the careless waste of his fellows.

It being conceded then that the water meter is a good thing, not only for the water department, but for the consumer, the only remaining step is to procure a strictly reliable water meter, one that has a high standard of efficiency, both as to durability and accurate registration, with a minimum cost for maintenance under all conditions. The Keystone meets each and all of these requirements. It is compact, durable and accurate in registration. Its simplicity and strength insures a minimum cost of maintenance.

The Keystone Meter is being shipped to, and is in practical use in more than a thousand cities and towns in the United States, Canada, Russia, Mexico, Alaska, and Porto Rico, their great popularity and the universal satisfaction they are giving being sufficient guarantee of their superiority.

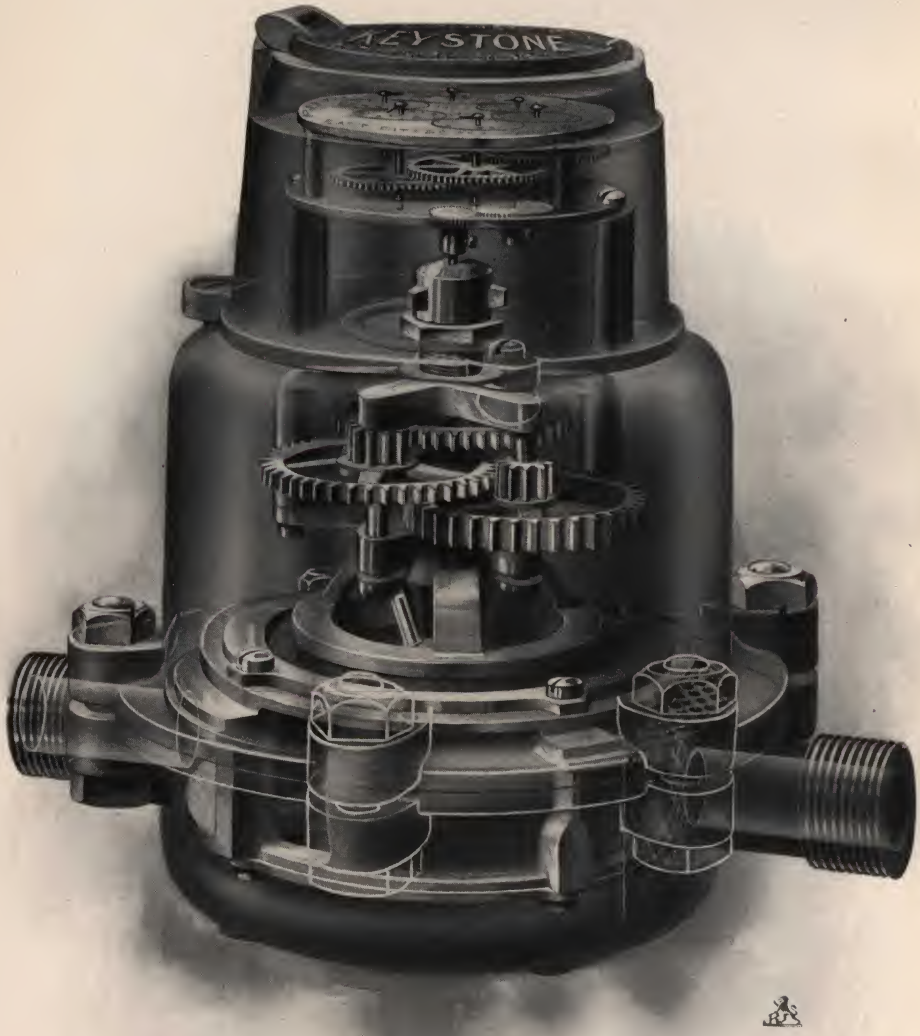
Attention is invited to the following pages which illustrate the Keystone Meter in detail.

Design of different sizes.

The Keystone Meter

THE Keystone Meter is of the well known disc type, the principle of which is so well understood by the trade that it is not necessary to enter into a description of its mode of operation. It is, however, to the other features of the Keystone Meter, as illustrated on the following pages, that we invite special attention, as we believe that a careful examination of its design and construction will go far towards establishing its superiority. Simplicity is the keynote of the Keystone Meter. It is so simple in design and construction that the merest novice can take it apart or put it together without the slightest trouble.

The ⅝-inch, ¾-inch and 1-inch sizes are made with male thread spuds, while the 1¼-inch, 1½-inch and 2-inch sizes have female thread spuds. All threads are cut to fit standard pipe. The 3-inch, 4-inch and 6-inch meters are made with flanges, and connections can be furnished for either wrought or cast iron pipe. The working parts are interchangeable and of the most durable material. The capacity of the respective sizes is equal to the capacity of the line of same dimension. The ports or waterways being larger than the given size of the meter (and in this respect the Keystone is superior to all other meters) gives a greater working capacity, without reduction of line pressure, than any other positive meter on the market.



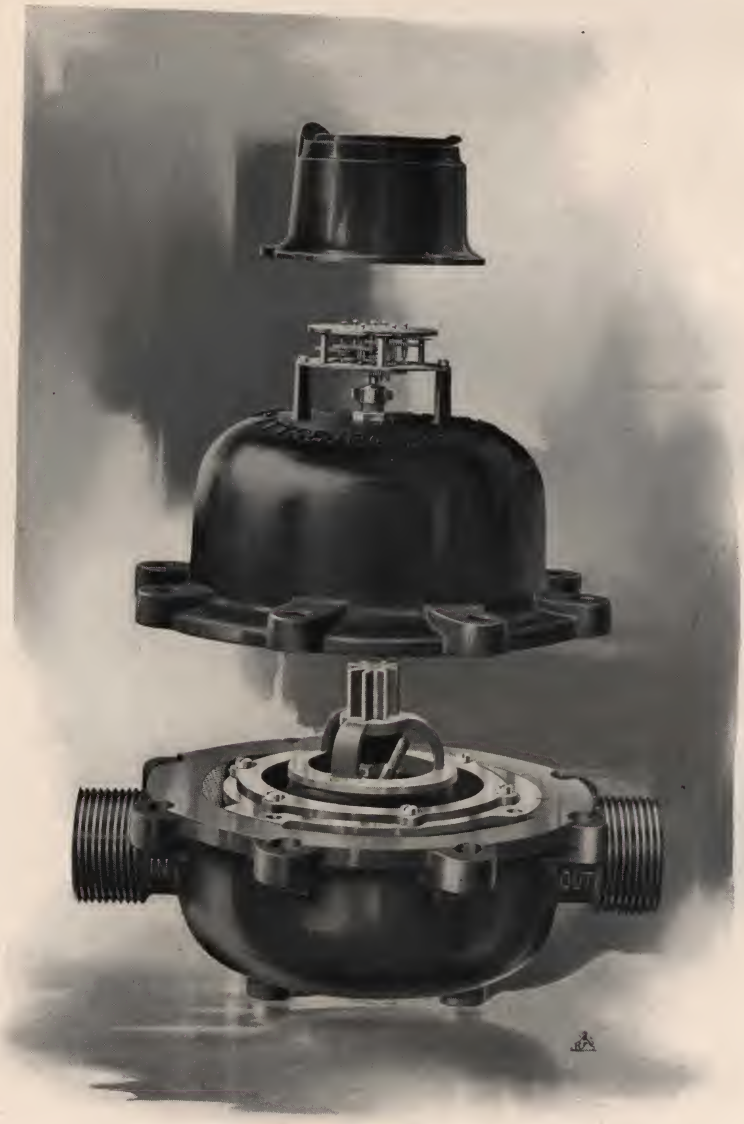
Phantom View.

Phantom View

HEREWITH we present a phantom view of the Keystone Meter, which shows the measuring chamber, intermediate gear and register. This illustration tells its own story of strength, compactness and simplicity. Having a large capacity, the labor of measuring the flow of water through a pipe of the same relative size as the meter is performed with the minimum of wear on the working parts, and with practically no loss of head or pressure.

Note the location of the strainer. It protects not only the measuring chamber from foreign matter, but the intermediate gear as well. The accompanying illustration shows how easily it can be removed—simply lifted out without the removing of a bolt or screw. This simplicity of design and construction is characteristic of the Keystone Meter throughout.

Showing ease of removing strainer.



Divisions of outer casing.

Three Sections of Meter

THE accompanying illustration shows the three outer sections of the Keystone Meter.

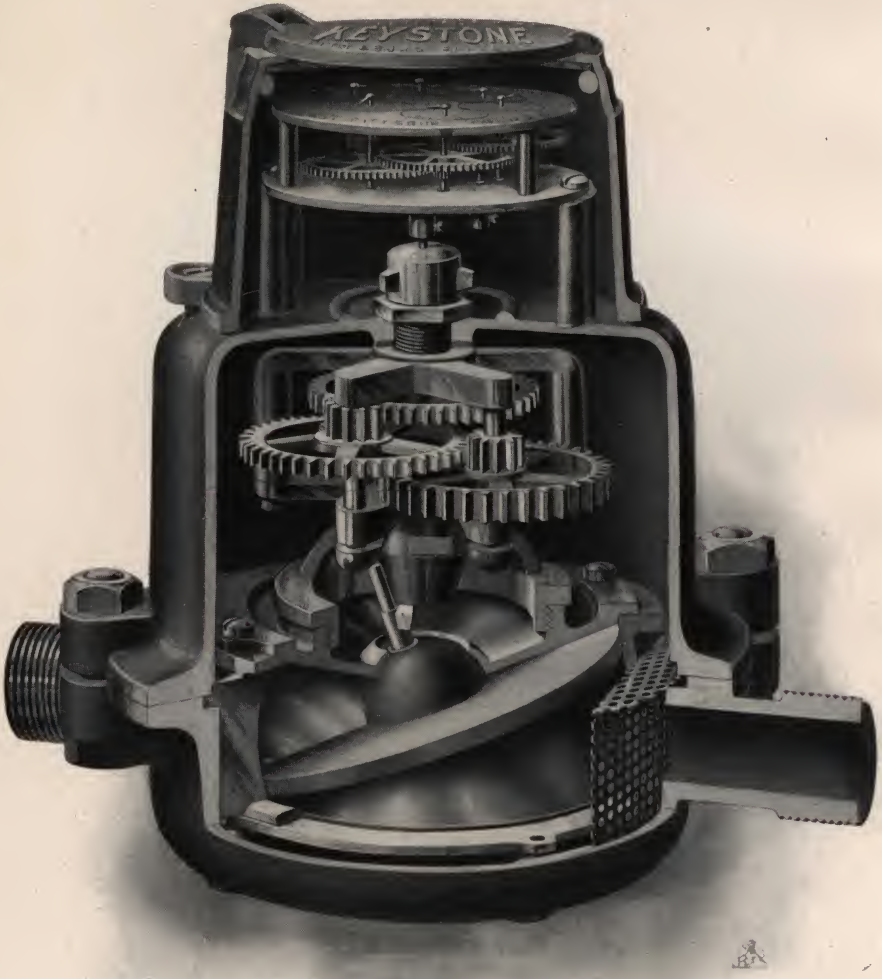
The first, or topmost part, comprises the movement box, cover and dial glass.

The second part consists of the upper shell, to which are attached the register, or movement, and the intermediate train of gears, which is shown in detail on page 19.

The third is the lower shell, to the spuds of which are attached the connections, and which contains the measuring chamber, in which operates practically the only working part of the meter, the hard rubber piston, or disc.

The connections being attached to the lower shell, it is possible to remove any of the other parts of the meter without detaching the lowel shell from the line of pipe, which is frequently of great convenience in cleaning the meter.

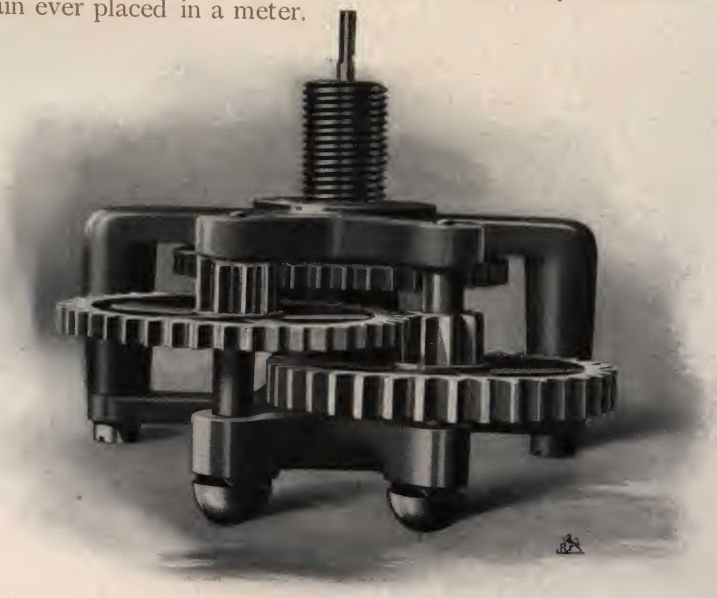
Showing method of inserting or removing piston or disc.



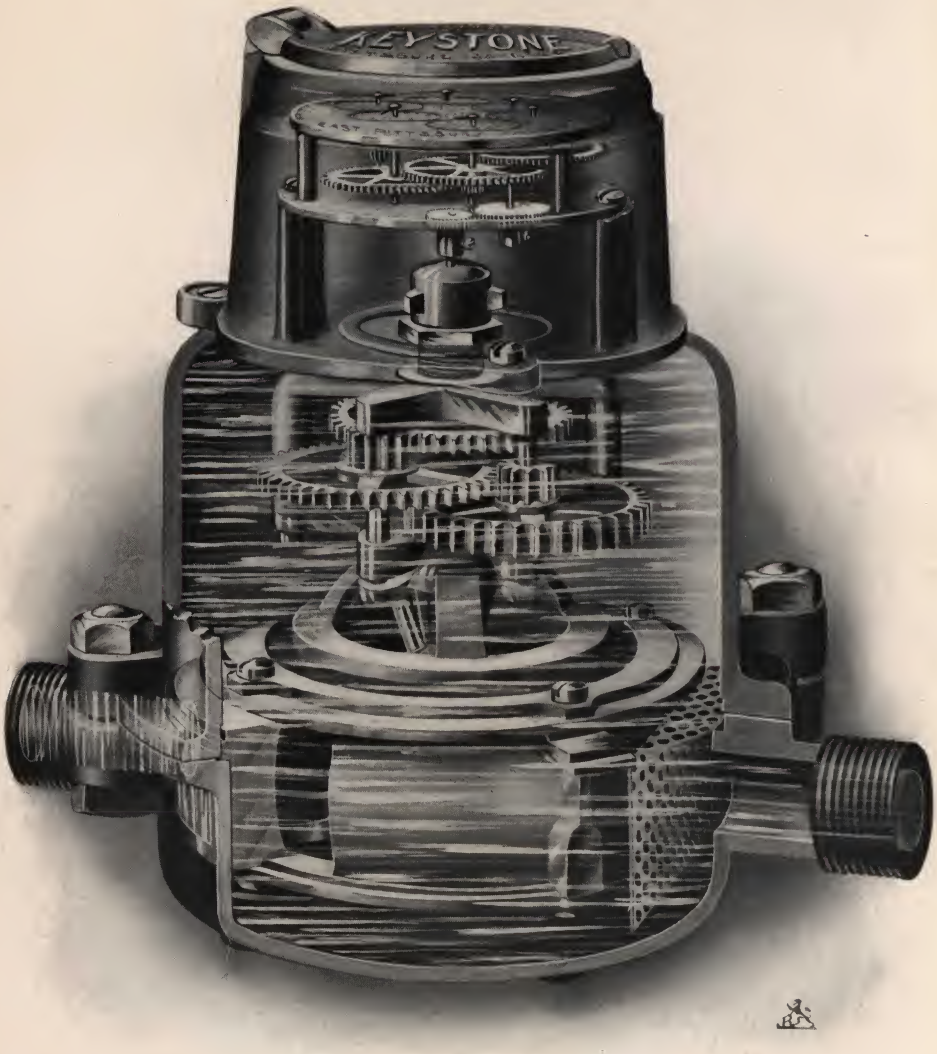
Sectional view.

Most Vital Part

THE intermediate train of the Keystone Meter deserves special notice. This is the most vital part of any meter, as upon the satisfactory performance of its work depends the success of the meter regardless of other considerations. By referring to the accompanying illustration it will be seen that this intermediate train has stepped bearings, which greatly reduce the friction and consequent wear, resulting in great durability and sensibility of registration. The first pinion and wheel of this train have a larger pitch and also a greater face than the second and third wheels, in order to take up the increased wear due to the higher speed at which the first wheel operates as compared with the other two. This train is made of specially adapted materials throughout, which exhaustive experiments and long experience have shown to be the most suitable for the various parts, wheels, pinions and frame. Altogether it is the simplest, lightest running and most satisfactory intermediate train ever placed in a meter.



Intermediate train.

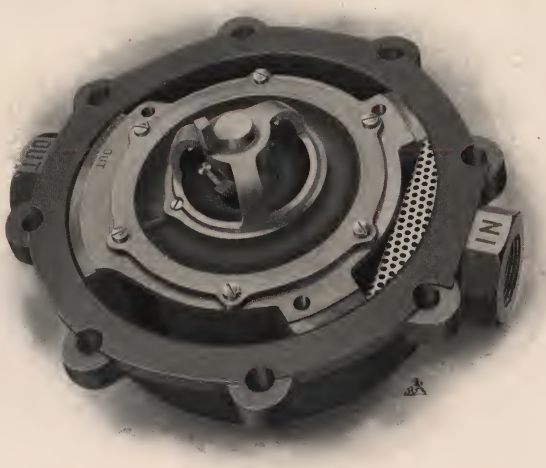


Measuring chamber surrounded and filled by water.

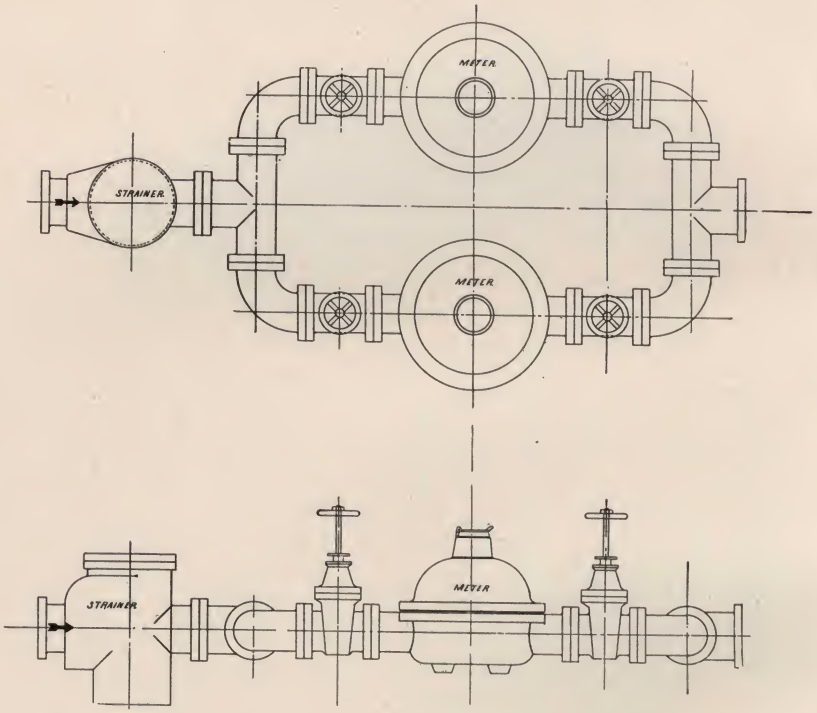
Measuring Chamber

THE accompanying illustration shows how the entire measuring chamber is surrounded as well as filled by water at the same pressure, also the large water passages to and from the measuring chamber. This insures a maximum capacity with a minimum reduction of line pressure. The pressure is therefore evenly maintained throughout the meter at all times so that every part is in perfect equilibrium.

The illustration below shows how the measuring chamber is supported in the lower shell by lugs, and is held in position without the aid of screws or bolts by the upper shell bearing on shoulder cut in these lugs. When, therefore, the upper section is removed, the measuring chamber can be immediately taken out without any annoyance of removing screws, etc. This cut also illustrates the large clearance around the measuring chamber, by which water has free access above and below the chamber and to the inlet port of the chamber.



Showing supporting lugs of measuring chamber.



Battery of two 6-inch meters.

Meters in Battery

MANY experienced waterworks officials have discontinued the installation of meters larger than six inches, finding it preferable to use two or more four or six-inch meters in battery where the measurement of a large volume of water is required.

Several good reasons for the adoption of this course are obvious.

First. With the use of a battery of smaller meters on a large service, should anything happen to any one of them, with the proper arrangement of valves, any meter may be cut out of service temporarily for examination, repairs or cleaning, without discontinuing the measurement of the whole supply for an instant, which avoids the necessity of resorting to the unsatisfactory method of prorating, which would be the case were only one large meter in service and it became deranged.

Second. In the event of the large service being discontinued for any reason, a meter larger than six inches is usually dead stock, whereas if a battery of smaller meters are used, they can readily be assigned to other services and not leave a large amount of money tied up in an idle investment.

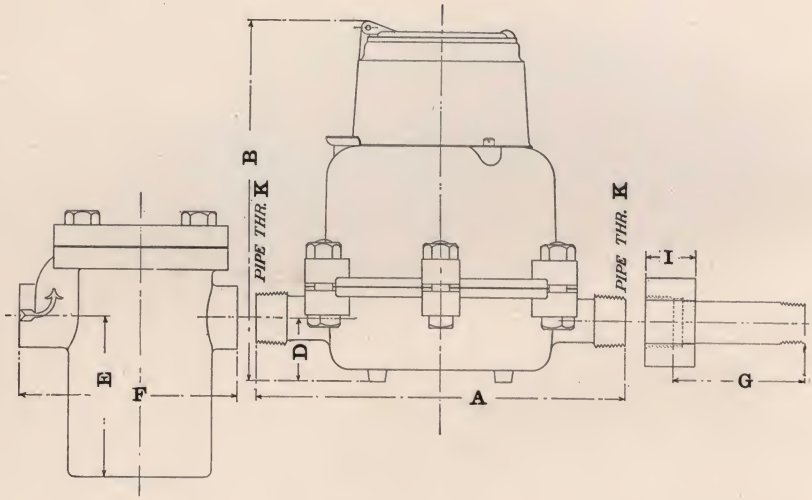
The cost of setting is practically the same for meters of unusual size and smaller meters in a battery of equivalent capacity, while the benefits, as stated above, are much greater.

This plan is in practical operation in many places and is giving excellent satisfaction.

The illustration on opposite page shows one method of connecting two meters in a battery, and we will be pleased to outline plans for setting any number of meters in a battery to meet the requirements of any particular case.

The dimensions of meters, connections and fish traps are given on pages 24 to 27.

Sizes and Dimensions



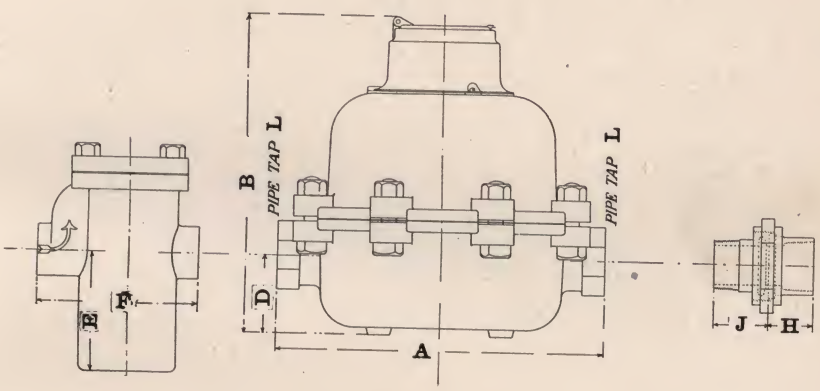
A

Size	A	B	*C	D	E	F	G	I	K
5/8-inch	7 3/8	7 3/8	6 3/16	1 1/4	3 3/16	4 3/8	2 5/8	1 3/16	3/4
3/4-inch	9	8 3/8	8	1 3/4	3 5/8	4 5/8	2 11/16	7/8	1
1-inch	10 7/8	9 1/8	9 3/4	2 1/4	4 3/8	5 3/4	2 11/16	1	1 1/4

* Drawing No. 6.

Pittsburg Meter Co. East Pittsburg, Pa.

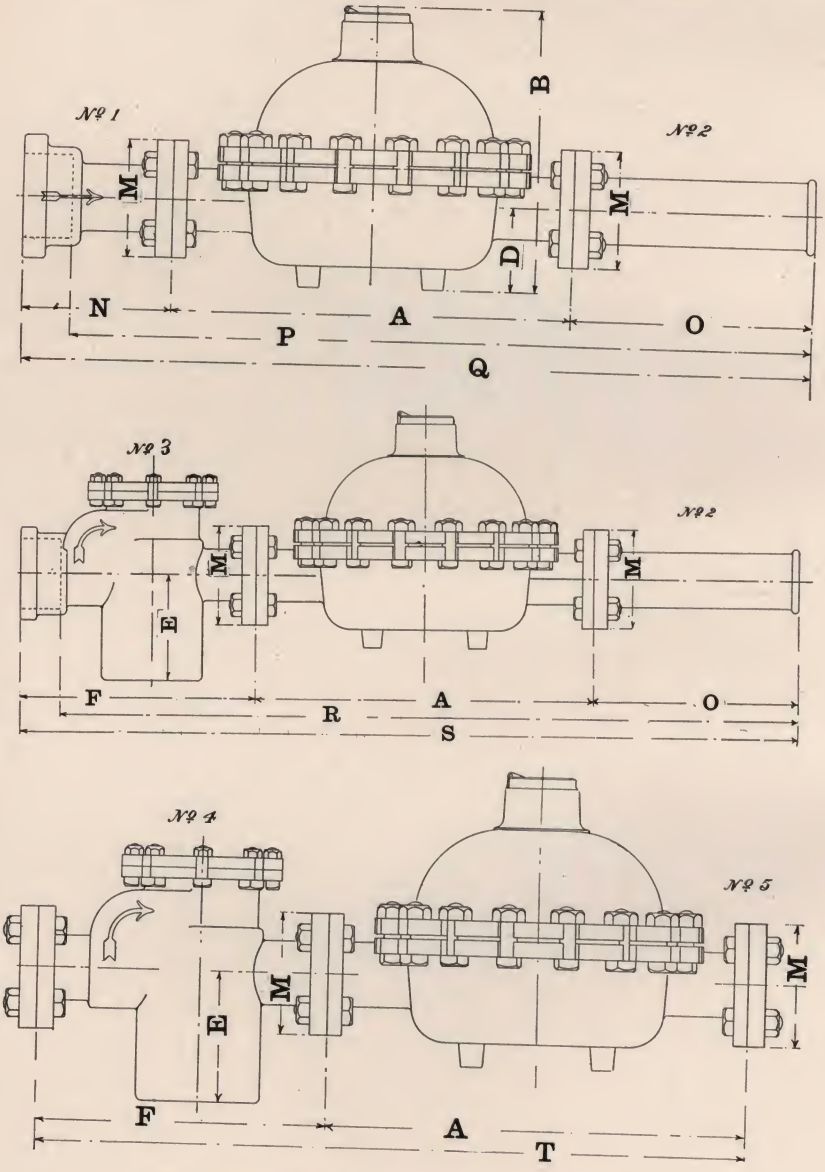
Sizes and Dimensions



B

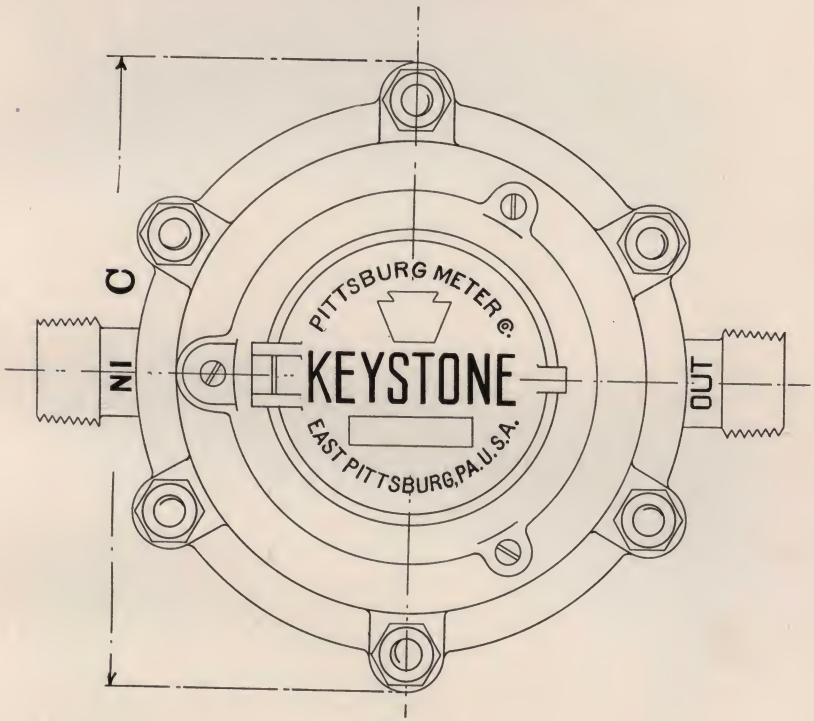
Size	A	B	*C	D	E	F	H	J	L
1¼-inch	11¼	11¾	11 1/16	2¼	4⅜	5¾	1 3/16	2	1¼
1½-inch	12⅝	12⅝	12¼	3 1/16	4⅞	6 3/16	1 27/32	2⅛	1½
2-inch	14	13¼	14¼	3 3/16	5¾	7	1 15/16	2⅝	2

* Drawing No. 6.



For sizes and dimensions see table C on page 27.

Sizes and Dimensions



Drawing No. 6.

Size . .	A	B	*C	D	E	F	M	N	O	P	Q	R	S	T
3-inch	24	17¼	18¾	5 1/16	7½	16¾	7	9	14½	44½	47½	52¼	55¼	40¾
4-inch	30	19½	25¼	6½	9¼	19⅜	8½	11	18	56	59	64⅛	67⅜	49⅜
6-inch	36	25	31¼	8¾	13	27½	11	16	18	66	70	78	81½	63½

* Drawing No. 6.

No. 1. Bell end connection. No. 2. Spigot end connection. No. 3. Bell end strainer. No. 4. Flanged strainer. No. 5. Loose Flange.

NOTE. Keystone Water Meters, all sizes, are provided with removable strainers at inlet spud to prevent damage by pebbles, stones, etc.

Independent Westinghouse Special Fish Traps are recommended for use where there is a large amount of foreign matter in the water.

Showing styles of dials in general use.

Registers

KEYSTONE Meters are furnished with circular or straight-reading registers, indicating cubic feet, U. S. gallons, Imperial gallons, or other units of measurement.

The circular register is the "old reliable" that has stood the test of scores of years of actual service on water meters and gas meters. It is still used exclusively on gas meters and is the standard of the largest water companies and water departments throughout the country.

In our straight-reading register we have the latest and most improved device of this type on the market, having taken advantage of all the improvements suggested by experience, and can therefore offer a straight-reading register that will give entire satisfaction.

When ordering meters please specify the style of register desired in addition to the unit of measurement wanted. Unless otherwise specified all orders will be filled with circular registers, in the absence of any previous instructions to the contrary.

Directions for Reading Circular Registers

The circular water meter register is read in the same manner as the register of a gas meter. For the information of those unacquainted with this method, the following explanation is given. For example:

The accompanying illustration of the circular cubic foot register shows a reading of 79,584 cubic feet, which may be determined in the following manner: Place the number indicated by the hand on the "10" circle in the units place and the figure indicated by the hand on the "100" circle in the tens place, and so on, viz:

4
80
500
9,000
70,000

79,584 cubic feet.

When a hand on any of the circles is so near a figure that it seems to indicate it exactly, look at the circle next lower in denomination, and if the hand on that circle has passed the "0," then the count should be taken for the figure which the hand on the higher circle seems to indicate, but not otherwise.

The small denomination circle having a black background is used for testing purposes only, being disregarded in the regular readings.

Each circle is divided into tenths, and it takes a complete revolution of the hand or pointer on any circle to indicate the whole number shown thereon.

When the first circle of the register indicates "100," in setting down the correct reading it is necessary to add a nought for the tens place, and additional noughts for the hundreds and thousands places respectively should the first circle begin with "1,000" or "10,000," as is the case with the larger meters.

It is never necessary to reset the registers. When the hand or pointer on the circle of the highest denomination has made a complete revolution, the hand on every circle will point to "0." However, should the cubic foot register illustrated herewith, indicate 79,584 cubic feet, and then at the next reading show a registration of only 6,248 cubic feet, to obtain the total reading it would be necessary to add to the latter reading 100,000 cubic feet; or, in other words, the consumption indicated by the meter between the two readings would be 106,248 — 79,584 = 26,664 cubic feet.

The gallon circular register is read in exactly the same manner as the cubic foot register, the only difference being that the result obtained will be in U. S. gallons.

In commercial practice one cubic foot of water equals 62.5 pounds, or 7.5 U. S. gallons. In order, therefore, to transpose a cubic foot reading into U. S. gallons it is only necessary to multiply the amount by 7.5. Dials reading in Imperial gallons, vedros, litres or other units can be furnished at the option of the purchaser.

Dial Extension

It is often found necessary to set a meter below the surface of the ground, making it difficult of access for reading. In cases of this kind the extension dial, as shown in the accompanying illustration, is indispensable. The standard length of the extension is three feet, which denotes that the register of the meter is elevated just three feet above its normal position. Any desired length will be furnished, however, but an extra charge will be made for any extension longer than the standard size. In ordering be particular to specify the length de sired. It is desirable to protect meter and extension from being injured by mud, stones or filth which may strain or derange the extension.

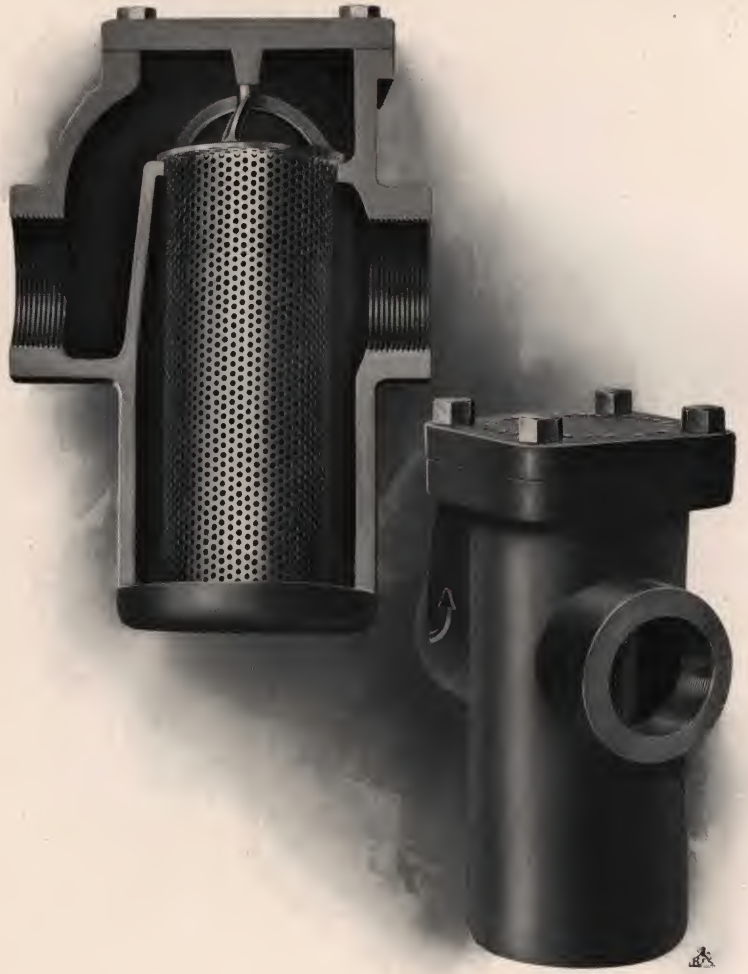
Reading meter with book.

Meter Reader's Book

WE illustrate herewith view of our improved meter reader's book. The sheets are perforated for insertion in a loose leaf binder, the latter being made so as to permit of the front cover being folded back in order that the meter reader may easily hold open book in one hand while using his other hand to mark reading, and the back cover of book or binder being rigid presents a smooth writing surface. The binder holds 100 sheets, which may be inserted, removed or rearranged at any time to suit the convenience of the meter reader.

This form of book permits the sending of men not familiar with reading meters to do the work. All that is necessary for them to do is to mark the position of the hands on the several dials and turn in the books at the office, where the readings are noted by an experienced man.

As the many advantages of this book cannot be realized from such a brief description, we shall be pleased to furnish copies for examination and trial, which may be returned if they fail to meet with your favorable consideration.



Fish trap.

Fish Trap

THE Westinghouse Special Fish Trap is a very desirable addition to the meter, especially in the larger sizes, in places where considerable sediment or any kind of foreign matter is liable to be carried into the meter. This trap is so arranged that all foreign matter is collected in the perforated copper basket, and by removing the top cap of the trap, the copper basket may be easily lifted out and emptied without the necessity of flushing the trap or disconnecting it from the line.

All Keystone Meters being provided with a strainer the use of the trap is not imperative, but in many places it is a desirable precaution.

See outline drawings on pages 24 to 27 for various kinds of connections furnished.

Meter prover.

Meter Prover

ON the opposite page we illustrate our Water Meter Prover, for proving by volume, which method is in use by many of the largest water companies and departments, and it will be found the most convenient and reliable apparatus designed for the purpose. It is made in two sizes, namely:

No. 1. Capacity 3 cubic feet, or 25 gallons.
No. 2. Capacity 10 cubic feet, or 100 gallons.

No. 1 is fitted with the necessary connections to prove ½ or ⅝-inch, ¾-inch and 1-inch meters. No. 2 has 1¼-inch, 1½-inch, 2-inch and 3-inch connections.

As shown in the illustration the scale indicates cubic feet on one side and U. S. gallons on the other. The inlet and exhaust valves are quick acting, enabling the operator to cut off the flow of water instantly.

These provers are carefully tested by weight and measurement and we guarantee their accuracy. Larger sizes made to order. If desired we will also furnish apparatus for proving meters by weight.

Proving Meters

In proving meters it is advisable to run a few gallons or cubic feet of water through the meter, after attaching to the line, before making the actual test, in order to ascertain that all working parts are moving freely and that all air is expelled from the measuring chamber.

12
10-A
10
14
8-A
9-B
17-A
8-B
20
17
1
1-A
8-D
8
1-B
8-E
CUBIC FEET
3
2-A
15
GALLONS
3-A
2
16-A
16
19
4
18-A
18
11
13
22
7-B
7-C
9
7
7-A
19-A

Number and Name of Parts

1. Movement Box, Complete.
1-A. Movement Box, Screws.
1-B. Movement Box, Seal Screw.
2. Movement, Circular — Cubic Feet.
2-A. Movement, Circular — Gallon.
3. Movement, Straight Reading — Cubic Feet.
3-A. Movement, Straight Reading — Gallon.
3-B. Movement Screws.
4. Change Gear, Driver.
4-A. Change Gear, Driven.
5. Upper Shell.
6. Lower Shell.
7. Reducing Gear.
7-A. Stuffing Box Nut.
7-B. Stuffing Box Cork Washers.
7-C. Stuffing Box Lock Nut.
8. Frame, Complete.
8-A. Frame only.
8-B. Frame Spindle.
8-C. Frame Screw.
8-D. Frame Bushing.
8-E. No. 1 Pinion.
9. Disc, complete.
9-A. Disc Spindle.
9-B. Disc Spindle Nut.
10. Cones.
10-A. Cone Screws.
11. Measuring Chamber.
12. Main Flange Gasket.
13. Bolts.
14. Division Plate.
15. Strainer.
16. Coupling, ⅝-inch to 1-inch.
16-A. Leather Washer.
17. Controlling Roller, 1¼-inch to 6-inch.
17-A. Controlling Roller Bushing, 1¼-inch to 6-inch.
18. Frame Spindle Crank, 1¼-inch to 6-inch.
18-A. Frame Spindle, 1¼-inch to 6-inch.
19. Coupling, 1¼-inch to 2-inch, Brass.
19-A. Coupling, 1¼-inch to 2-inch, Iron.
20. Bell Connection.
21. Flange Connection.
22. Spigot Connection.

NOTE. In ordering state the *size* and *serial* number of the meter for which the parts are wanted, in addition to the numbers by which they are designated on the illustration.

Prices furnished on application.

Capacities, Dimensions and Weights

Size Inches	*Greatest Proper Quantity per Minute		Distance Between Spuds Inches	Height Over All Inches	Diameter of Main Flange Inches	Weight Pounds	Weight Boxed Pounds
	Cu. Ft.	Gallons					
½ or ⅝	2	15	7⅜	7⅜	6 3/16	11	18
¾	4	30	9	8⅜	8	18	28
1	8	60	10⅞	9⅛	9¾	31	40
1¼	10	75	11¼	11¾	11 1/16	45	60
1½	12	90	12⅝	12⅝	12¼	75	85
2	20	150	14	13¼	14¼	115	130
3	40	300	24	17¼	18¾	225	290
4	80	600	30	19½	25¼	505	575
6	120	900	36	25	31¼	1,000	1,125

*Capacity of meters equals full flow of pipe; amount given above is commensurate with reasonable service.

NOTE. For the convenience of our patrons we furnish ½ or ⅝-inch meters with connections for standard ¾-inch pipe; however, we do not claim they will do the work required of a ¾-inch meter.

Hot Water Meters

We manufacture Hot Water Meters for measuring feed water to boilers and other purposes, and meters for measuring crude or refined oil, beer or other liquids, and shall be pleased to quote prices and furnish detailed information concerning same on application.

Directions for Setting

Set the meter firmly in position desired and protect it from frost.

If used in connection with a steam or hot water boiler, a check valve should be placed between the outlet of the meter and boiler, as far from the meter as possible, so as to protect it from back pressure of steam and hot water.

The supply pipe should be flushed before setting the meter.

Red or white lead should not be used for making joints.

In starting, *turn water on very slowly* until working parts of meter are in equilibrium and the air is exhausted from meter and line.

Directions for Ordering

State whether shipment is to be by freight or express.

Unless advised to the contrary, connections will be shipped with all sizes of meters. However, in ordering 3-inch, 4-inch and 6-inch meters, specify whether connections are wanted for cast or for wrought iron pipe, and if for cast iron pipe state whether two spigot or two bell ends, or one of each, are wanted. See illustrations of connections on pages 24 to 27.

If Fish Trap is ordered, specify kind of connections wanted on inlet side for sizes above 2-inch. Outlets of 3-inch, 4-inch and 6-inch fish traps have flanged ends to match meter flanges.

⅝-inch, ¾-inch and 1-inch meters have male thread spuds; 1¼-inch, 1½-inch and 2-inch meters have female thread spuds; while 3-inch, 4-inch and 6-inch meters have flanged inlet and outlet.

Specify whether circular or straight-reading registers are desired; also whether they are to indicate in cubic feet, U. S. gallons or other units.

NOTE. To effect a saving in freight, ⅝-inch and ¾-inch meters are packed *six in a box*, when ordered in quantities. Such boxes weigh, respectively, 85 lbs. and 135 lbs., making transportation charges practically the same for *six* as for a single meter, and by ordering not less than six meters at a time, our patrons may avail themselves of this saving in freight charges, which is quite an item when shipment is made to any distant point.

Westinghouse Code

While this code was primarily devised for our foreign patrons, still it may be frequently used with great advantage by our customers throughout the United States and Canada.

The following code words may be used in ordering Keystone Water Meters, Westinghouse Fish Traps and Dial Extensions.

Keystone Water Meters

Designate description of dial and connections required.

TUBULO.	Keystone Water Meter, ½ or ⅝-inch size.
TUBULORUM.	" " " ¾-inch size.
TUBUNENS.	" " " 1 " "
TUBUS.	" " " 1¼ " "
TUCANES.	" " " 1½ " "
TUCHARTIG.	" " " 2 " "
TUCHBALEN.	" " " 3 " "
TUCHBAUM.	" " " 4 " "
TUCHBEUTE.	" " " 6 " "
TUCHFABRI.	Dial, cubic foot, circular.
TUCHHAKEN.	" " " straight-reading.
TUCHHANDE.	" Imperial gallon, circular.
TUCHJACKE.	" " " straight-reading
TUCHKAPPE.	" litre, circular.
TUCHLADEN.	" " straight-reading.
TUCHLAENG.	" U. S. gallon, circular.
TUCHLAPEN.	" " " straight-reading.
TUCHMACHE.	Without connections (all sizes).
TUCHMANTE.	With connections (⅝-inch, ¾-inch and 1-inch sizes).
TUCHMOTTE.	" brass connections (1¼, 1½ and 2-inch sizes).
TUCHNADEL.	" iron connections (1¼, 1½ and 2-inch sizes).
TUCHPRES.	" flanges (3-inch, 4-inch and 6-inch sizes).
TUCHRAHM.	" socket and spigot connections (3-inch, 4-inch and 6-inch sizes).
TUCHRAUHE.	" socket connections both ends (3-inch, 4-inch and 6-inch sizes).
TUCHREST.	" spigot connections both ends (3-inch, 4-inch and 6-inch sizes).

Westinghouse Fish Traps

Designate description of connections required.

TUCHSAMMT.	½-inch or ⅝-inch size tapped for ½-inch wrought iron pipe.
TUCHTELOS.	¾ " size tapped for ¾-inch wrought iron pipe.
TUCHTHUIS.	1 " " " " 1 " " " "
TUCHWAGET.	1¼ " " " " 1¼ " " " "
TUCHWALKE.	1½ " " " " 1½ " " " "
TUCHWEBER.	2 " " " " 2 " " " "
TUCHWOLLE.	3 " "
TUCKER.	4 " "
TUCQUES.	6 " "
TUDEBODUS.	Flanged inlet and outlet, without loose flanges (3-inch, 4-inch and 6-inch sizes).
TUDELANAS.	Flanged inlet and outlet, with loose flanges (3-inch, 4-inch and 6-inch sizes).
TUDENSES.	Socket inlet and flanged outlet, without loose flange (3-inch, 4-inch and 6-inch sizes).
TUDERNA.	Socket inlet and flanged outlet, with loose flange (3-inch, 4-inch and 6-inch sizes).

Dial Extensions

Designate length required.

TUDESCO.	Dial extensions for ⅝-inch, ¾-inch and 1-inch meters.
TUDESQUE.	" " " 1¼-inch, 1½-inch, 2-inch, 3-inch, 4-inch meters.
TUDICULAB.	" " " 6-inch meters.

Cable Address "Meter Pittsburg."

The Westinghouse Associated Companies

GEORGE WESTINGHOUSE, President

THE AMERICAN BRAKE COMPANY, Works at St. Louis, Mo., U. S. A.

THE BRYANT ELECTRIC COMPANY, Works at Bridgeport, Conn., U. S. A.

MANHATTAN GENERAL CONSTRUCTION COMPANY,
Works at Newark, N. J., U. S. A.

NERNST LAMP COMPANY, Works at Pittsburg, Pa., U. S. A.

R. D. NUTTALL COMPANY, Works at Pittsburg, Pa., U. S. A.

THE PERKINS ELECTRIC SWITCH MANUFACTURING COMPANY,
Works at Bridgeport, Conn., U. S. A.

PITTSBURG METER COMPANY, Works at East Pittsburg, Pa., U. S. A.

SAWYER-MAN ELECTRIC COMPANY, Works at Allegheny, Pa., U. S. A.

SECURITY INVESTMENT COMPANY, Pittsburg, Pa., U. S. A.

UNION SWITCH & SIGNAL COMPANY, Works at Swissvale, Pa., U. S. A.

THE WESTINGHOUSE AIR BRAKE COMPANY, Works at Wilmerding, Pa., U. S. A

WESTINGHOUSE AUTOMATIC AIR & STEAM COUPLER COMPANY,
Works at St. Louis, Mo., U. S. A.

WESTINGHOUSE, CHURCH, KERR & COMPANY,
Engineers, New York City, N. Y., U. S. A.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY,
Works at East Pittsburg, Pa., U. S. A.

WESTINGHOUSE FRICTION DRAFT GEAR COMPANY,
Works at Pittsburg, Pa., U. S. A.

THE WESTINGHOUSE MACHINE COMPANY,
Works at East Pittsburg, Pa., U. S. A.

THE WESTINGHOUSE FOUNDRIES COMPANY,
Works at Trafford City, Pa., U. S. A.

THE WESTINGHOUSE MANUFACTURING COMPANY, LIMITED,
Works at Hamilton, Canada.

WESTINGHOUSE TRACTION BRAKE COMPANY,
Works at New York City, N. Y., U. S. A.

THE BRITISH WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, LTD.,
Works at Manchester, England.

SOCIÉTÉ ANONYME WESTINGHOUSE, Works at St. Petersburg, Russia.

SOCIÉTÉ INDUSTRIELLE D'ÉLECTRICITÉ, PROCÉDÉS WESTINGHOUSE,
Works at Havre, France.

THE WESTINGHOUSE BRAKE COMPANY, LIMITED,
Works at London, Paris and Hanover.

WESTINGHOUSE ELECTRIC COMPANY, LIMITED,
Offices, Westinghouse Building, Norfolk St., Strand, London, W. C.

WESTINGHOUSE ELECTRICITÄTS-ACTIENGESELLSCHAFT,
19 Jägerstrasse, Berlin, W., Germany

Guarantee

All Keystone Meters are furnished under the following guarantee:

We Guarantee Keystone Water Meters to be perfect in workmanship and material, and accurate in measurement, and to maintain their accuracy when properly used within their rated capacity. The manufacturers stand ready to replace, at any time, free of charge, all Keystone Meters or parts thereof found to be defective, either in workmanship or material.

Results

Obtained Under the Old and the New Systems

IF you wish to check waste and reduce your per capita consumption within reasonable bounds, it can only be done by meters. Whenever your per capita consumption exceeds the eighty gallon mark there's a leak somewhere. It is self-evident that something is wrong, and an investigation as to the cause is absolutely necessary. The table given on the following page, extracted from official reports and compiled by George I. Bailey, M. Am. Soc. C. E., forcibly illustrates the vast difference in results obtained under the meter and flat rate systems in the cities mentioned.

Where Meters are Used Largely

Town	Population Supplied	Daily per Capita Consumption	Per Cent of Taps Metered
Lexington, Ky	26,369	47	99.47
Racine, Wis	29,102	47	24.41
Woonsocket, R. I.	32,000	29	91.01
Sioux City, Iowa	33,111	43	50.83
Brocton, Mass	35,000	32	81.51
Utica, N. Y.	56,383	53	96.80
Des Moines, Iowa	62,139	48	57.19
Dayton, Ohio	85,333	62	46.67
Fall River, Mass.	104,500	36	94.25
St. Paul, Minn.	125,000	67	28.15
Providence, R. I.	187,300	54	82.60
Milwaukee, Wis.	300,000	80	67.59
Totals and averages	1,076,237	50	68.37

Where Very Few Meters are Used

Town	Population Supplied	Daily per Capita Consumption	Per Cent of Taps Metered
Schenectady, N. Y.	27,000	222	0.29
Saginaw, Mich	28,000	269	8.57
Spokane, Wash.	32,000	248	3.30
La Crosse, Wis.	29,000	193	1.21
Wheeling, W. Va.	38,878	244	0.09
Camden, N. J.	50,000	280	1.41
Bridgeport, Conn.	70,000	236	2.14
Los Angeles, Cal.	90,000	189	2.72
Denver, Colo	100,000	300	1.19
New Haven, Conn.	108,027	150	2.58
Pittsburg, Pa.	234,000	231	0.60
Buffalo, N. Y.	400,000	233	1.62
Totals and averages	1,206,905	233	2.14

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